(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 3 November 2005 (03.11.2005)

PCT

(10) International Publication Number WO 2005/104228 A1

(51) International Patent Classification⁷: **H01L 23/06**, G01P 9/04, H01L 23/02, 29/84

(21) International Application Number:

PCT/JP2005/006581

(22) International Filing Date: 29 March 2005 (29.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(**30**) Priority Data: 2004-127134

4 22 April 2004 (22.04.2004) JP

(71) Applicant (for all designated States except US): MAT-SUSHITA ELECTRIC WORKS, LTD. [JP/JP]; 1048, Oaza-Kadoma, Kadoma-shi, Osaka 5718686 (JP).

(72) Inventors; and

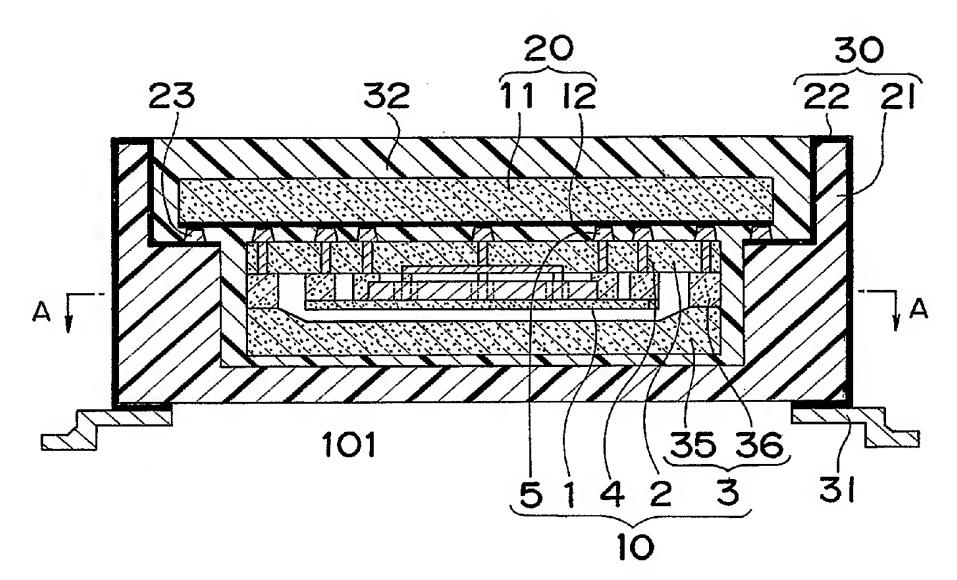
(75) Inventors/Applicants (for US only): TSUJI, Koji [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka, 5718686 (JP). SANAGAWA, Yoshiharu [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka, 5718686 (JP). KIRIHARA, Masao

[JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka, 5718686 (JP). **GOUDA, Kazuo** [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka, 5718686 (JP). **NISHIJIMA, Youichi** [JP/JP]; c/o MATSUSHITA ELECTRIC WORKS, LTD., 1048, Oaza-Kadoma, Kadoma-shi, Osaka, 5718686 (JP).

- (74) Agents: KAWAMIYA, Osamu et al.; AOYAMA & PART-NERS, IMP Building, 3-7, Shiromi 1-chome, Chuo-ku, Osaka-shi, Osaka, 5400001 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: SENSOR DEVICE, SENSOR SYSTEM AND METHODS FOR MANUFACTURING THEM



(57) Abstract: A sensor system includes a sensor device (10) and an integrated circuit (20) for driving the device (10). The device (10) includes a sensor body (1) of a silicon-based material, an upper sealing member (2) of a silicon-based material, and a lower sealing member (3) of a silicon-based material. The upper sealing member (2) and the lower sealing member (3) are joined together to cooperatively house the body (1) therewithin in an airtight manner. The device (10) and the circuit (20) are formed as a stacked body. The body (1) is electrically connected to a wiring pattern (12) of the circuit (20) through a conductive through-path (4) penetrating the upper sealing member (4) and a mounting electrode (5) provided on an outer surface of the upper sealing member (2). The device (10) is connected to an MID substrate (30) through the circuit (20).

WO 2005/104228 A1



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.